AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method for obtaining a pluripotent human blastocyst-derived stem cell line~~, the method~~ comprising: ~~the steps of~~

i) using a fertilized oocyte of ~~having a~~ grade 1 or 2[[,]] to obtain a blastocyst~~, having a~~ of grade A or B; [[,]]

ii) co-culturing the blastocyst with feeder cells to establish ~~for establishing~~ one or more colonies of inner cell mass cells; [[,]]

iii) isolating the inner cell mass cells by mechanical dissection; and [[,]]

iv) co-culturing ~~of~~ the inner cell mass cells with feeder cells to obtain a blastocyst-derived stem cell line.

~~v) optionally, propagation of the blastocyst-derived stem cell line.~~

2. (Currently Amended) A method for obtaining a pluripotent human blastocyst-derived stem cell line~~, the method~~ comprising: ~~the steps of~~

i) using a fertilized oocyte of ~~having a~~ grade 1 or 2[[,]] to obtain a blastocyst; [[,]] ~~optionally having a grade A or B,~~

ii) co-culturing the blastocyst with feeder cells to establish ~~for establishing~~ one or more colonies of inner cell mass cells; [[,]]

iii) isolating the inner cell mass cells by mechanical dissection; and [[,]]

iv) co-culturing ~~of~~ the inner cell mass cells with feeder cells to obtain a blastocyst-derived stem cell line.

~~v) optionally, propagation of the blastocyst-derived stem cell line.~~

3. (Currently Amended) A method for obtaining a pluripotent human blastocyst-derived stem cell line~~, the method~~ comprising: ~~the steps of~~

i) using a fertilized oocyte ~~optionally, having a grade 1 or 2,~~ to obtain a blastocyst of ~~, having a~~ grade A or B; [[,]]

ii) co-culturing the blastocyst with feeder cells to establish ~~for establishing~~ one or more colonies of inner cell mass cells; [[,]]

iii) isolating the inner cell mass cells by mechanical dissection; and [[,]]

iv) co-culturing ~~of~~ the inner cell mass cells with feeder cells to obtain a blastocyst-derived stem cell line.

~~v) optionally, propagation of the blastocyst-derived stem cell line.~~

4. (Currently Amended) A method for obtaining a pluripotent human blastocyst-derived stem cell line~~, the method~~ comprising: ~~the steps of~~

i) using a fertilized oocyte optionally of ~~, having a~~ grade 1 or 2[[,]] to obtain a blastocyst of [[,]] optionally ~~having a~~ grade A or B; [[,]]

ii) co-culturing the blastocyst with feeder cells to establish ~~for establishing~~ one or more colonies of inner cell mass cells,

iii) isolating the inner cell mass cells by mechanical dissection,

iv) co-culturing ~~of~~ the inner cell mass cells with feeder cells to obtain a blastocyst-derived stem cell line; and [[,]]

v) propagation of the blastocyst-derived stem cell line culturing the stem cells with feeder cells of a density of less than about 60,000 cells per cm^2~~, such as e.g. less than about 55,000 cells per cm^2, or less than about 50,000 cells per cm^2, such as about 45,000 cells per cm^2~~.

5. (Currently Amended) The ~~A~~ method ~~according to any~~ of ~~the~~ claim 1, wherein ~~claims 1-4 in which~~ the blastocyst in step i) is a spontaneously hatched blastocyst.

6. (Currently Amended) The ~~A~~ method ~~according to any~~ of ~~the~~ claim 1, wherein ~~claims 1-5 in which~~ the blastocyst-derived stem cell line is stable.

7. (Currently Amended) The ~~A~~ method ~~according to any~~ of ~~the~~ claim 1, ~~claims 1-6~~ wherein the blastocyst-derived stem cell line is propagated.

8. (Currently Amended) The ~~A~~ method of ~~according to~~ claim 7, wherein propagating the ~~in which the propagation of~~ blastocyst-derived stem cell line comprises passaging ~~passage of~~ the stem cell line every 4-5 days.

9. (Currently Amended) The ~~A~~ method of claim 7 ~~according to claims 7-8~~, wherein propagating the ~~in which the propagation of~~ blastocyst-derived stem cell line comprises culturing the stem cells with feeder cells of a density of less than about 60,000 cells per cm^2~~, such as e.g. less than about 55,000 cells per cm^2, or less than about 50,000 cells per cm^2~~.

10. (Currently Amended) The ~~A~~ method of ~~according to~~ claim 9, wherein propagating the ~~in which the propagation of~~ blastocyst-derived stem cell line comprises culturing the stem cells with feeder cells of a density of about 45,000 cells per cm^2.

11. (Currently Amended) The ~~A~~ method of claim 7, wherein ~~according to claims 7-10, in which~~ the propagation of blastocyst-derived stem cell line comprises passage of the feeder cells at the most 3 times~~, such as e.g. at the most 2 times~~.

12. (Currently Amended) The ~~A~~ method of claim 1, wherein ~~according to any of the claims 1-11 in which~~ the zona pellucida of the blastocyst has been at least partially digested prior to step ii).

13. (Currently Amended) The ~~A~~ method of ~~according to~~ claim 12, wherein ~~in which~~ the zona pellucida of the blastocyst has been at least partially digested with a digestive agent selected from the group comprising acidic reacting substances, enzymes and mixtures thereof.

14. (Currently Amended) The ~~A~~ method of claim 1, wherein ~~according to any of the claims 1-13 in which~~ step ii) and/or step iv) is performed in an agent that improves the attachment of the blastocysts, and/or ~~if relevant~~ the inner cell mass cells to the feeder cells.

15. (Currently Amended) The ~~A~~ method of ~~according to~~ claim 14, wherein the agent is a hyaluronic acid.

16. (Currently Amended) The ~~A~~ method of claim 1, wherein ~~according to any of the claims 1-15 in which~~ the feeder cells are embryonic feeder cells.

17. (Currently Amended) The ~~A~~ method of claim 1, wherein ~~according to any of the claims 1-16 in which~~ the feeder cells employed in steps ii) and iv) are the same or different and the feeder cells originate from animal source.

18. (Currently Amended) The ~~A~~ method of ~~according to~~ claim 17, wherein the feeder cells are of mouse or human origin.

19. (Currently Amended) The ~~A~~ method of claim 1 ~~according to any of the claims 1-18~~, wherein the feeder cells are mitotically inactivated.

20. (Currently Amended) The ~~A~~ method of claim 1 ~~according to any of the claims 1-19~~, wherein the stem cell line

i) exhibits proliferation capacity in an undifferentiated state for more than 21 months when grown on mitotically inactivated embryonic feeder cells; ~~, and~~

ii) exhibits normal euploid chromosomal karyotype; ~~, and~~

iii) maintains potential to develop into derivatives of all types of germ layers both *in vitro* and *in vivo*; ~~, and~~

iv) exhibits at least two of the group of ~~following~~ molecular markers consisting of OCT-4, alkaline phosphatase, ~~the carbohydrate epitopes~~ SSEA-3, SSEA-4, TRA 1-60, TRA 1-81, and the protein core of a keratin sulfate/chondroitin sulfate

pericellular matrix proteinglycan recognized by the monoclonal antibody GCTM-2; ~~, and~~

v) does not exhibit molecular marker SSEA-1 or other differentiation markers; [[,]] ~~and~~

vi) retains ~~its~~ pluripotency and forms teratomas in vivo when injected into immuno-compromised mice; [[,]] and

vii) is capable of differentiation ~~differentiate~~.

21. (Currently Amended) A ~~Use of the human~~ blastocyst-derived stem cell line obtained by the method of claim 1 ~~according to any of the claims 1-20 for the preparation of differentiated cells~~.

22. (Currently Amended) The ~~A~~ method ~~according to any~~ of claim 1 ~~the claims 1-20~~, wherein the stem cell line has the ability of differentiating into an insulin producing cells.

23. (Currently Amended) The ~~A~~ method of ~~according to~~ claim 22, wherein the insulin producing cells form ~~are capable of forming~~ islet-like structures.

24. (Currently Amended) The ~~A~~ method of claim 22 ~~according to claims 22 or 23~~, wherein the amount of insulin producing β-cells which is ~~are~~ derived from the pluripotent human BS cell line is higher than 25%~~, such as e.g. higher than 35%, or higher than 40%, or higher than 45%, or higher than 50%~~.

25. (Currently Amended) The ~~A~~ method of claim 22 ~~according to claims 22-24~~, wherein the insulin producing cell line produces at least about 300 ng insulin/mg total protein ~~such as at least about 380 ng insulin/mg total protein or at least about 450 ng insulin/mg total protein~~.

26. (Currently Amended) The ~~A~~ method ~~according to any~~ of claim 1 ~~the claims 1-20 or 22-25~~, wherein the blastocyst-derived stem cells have the ability to differentiate into differentiated cells, which display the expression of pancreatic cell

type markers, including at least one of a group consisting of insulin, Glut-2, Pdx-1, glucokinase, glucagons, and somatostatin.

27. (Currently Amended) The ~~A~~ method ~~according to any~~ of claim 1 ~~the claims 1-20 or 22-26~~, wherein the blastocyst-derived stem cells have the ability to differentiate into insulin-producing cells that organize ~~characterized by their organization~~ into islet-like structures comprising an inner core of β-cells surrounded by an outer layer of neuron-type cells, which neuron-type cells display expression of at least one of the following neuronal cell type markers, including neuron-specific β-III tubulin (TUJ1), NeuN, DoubleCortin, tyrosine hydroxylase, and Map 2.

28. (Currently Amended) The ~~A~~ method ~~according to any~~ of claim 1 ~~the claims 1-20~~, wherein the blastocyst-derived stem cells are capable of ~~being made into~~ differentiated into cells, which express ~~display the expression of~~ at least one ~~of the following~~ neuronal cell type markers selected from the group consisting of ~~,~~ ~~including~~ neuron-specific β-III tubulin (TUJ1), NeuN, DoubleCortin, tyrosine hydroxylase, and Map 2.

29. (Currently Amended) A ~~Use of a~~ preparation of differentiated cells derived from the blastocyst-derived stem cells obtained by the method ~~according to any~~ of claim 1 ~~the claims 1-20 or 22-28 for the manufacture of a medicament~~ for ~~the~~ preventing ~~prevention~~ or treating ~~treatment of~~ pathologies or diseases caused by tissue degeneration.

30. (Currently Amended) A ~~Use of a~~ preparation of differentiated cells derived from the blastocyst-derived stem cells obtained by the method ~~according to any~~ of claim 1 ~~the claims 1-20 or 22-27 for the manufacture of a medicament~~ for ~~the~~ preventing ~~prevention~~ or treating ~~treatment of~~ pathologies or diseases in the pancreas.

31. (Currently Amended) The preparation of differentiated cells of ~~Use according to~~ claim 30, wherein ~~in which~~ the disease is diabetes.

32. (Currently Amended) The preparation of differentiated cells of ~~Use according to~~ claim 28 ~~or 29~~, wherein ~~in which~~ the disease is type 1 diabetes.

33. (Currently Amended) A ~~Use of a~~ preparation of differentiated cells derived from the blastocyst-derived stem cell line obtained by the method ~~according to any~~ of claim 1 ~~the claims 1-20 or 28 for the manufacture of a medicament~~ for preventing ~~the prevention~~ or treating ~~treatment of~~ pathologies or diseases in the nervous system.

34. (Currently Amended) The preparation of differentiated cells of ~~Use according to~~ claim 33, in which the disease is selected from the group consisting of multiple sclerosis ~~schlerosis~~, spinal chord injury, an encephalopathy ~~encephalopathies~~, Parkinson's disease, Huntingdon's disease, stroke, a traumatic brain injury ~~injuries~~, a hypoxia induced brain injury ~~injuries~~, an ischemia induced brain injury ~~injuries~~, a hypoglycemic brain injury ~~injuries~~, a degenerative disorder ~~disorders~~ of the nervous system, a brain tumor, ~~tumors~~ and a neuropathy ~~neuropathies~~ in the peripheral nervous system.

35. (Currently Amended) A kit for performing the method ~~according to any~~ of claim 1 ~~the claims 1-20~~, comprising human blastocysts with an intact zona pellucida or spontaneously hatched blastocysts, and at least two of the following components in separate compartments: [[;]] hyaluronic acid, pronase, BS-cell medium, and human or mouse embryonic feeder cells.

36. (Currently Amended) A method for producing an essentially pure preparation of insulin-producing differentiated stem cells, comprising: ~~the steps of;~~

i) expanding human blastocyst-derived stem cells by growing the blastocyst-derived stem cells ~~these~~ on an inactivated feeder cell layer in a suitable medium;

ii) generating blastocyst-derived stem cell bodies by dissociating colonies formed in step i) into smaller aggregates or individual cells, followed by transferring said

aggregates or individual cells in to non-adherent containers wherein ~~where they~~ said aggregate or individual cells are incubated in a suitable medium;

iii) plating the blastocyst-derived stem cell bodies in containers in a suitable medium;

iv) selecting nestin-positive neural precursors in ITFSn medium;

v) expanding pancreatic endocrine progenitor cells in[[,]] N2-medium comprising B27 media complement and basic fibroblast growth factor; and

vi) changing the medium to a basic fibroblast growth factor-free N2 medium.

37. (Currently Amended) The ~~A~~ method of ~~according to~~ claim 36, wherein ~~in which~~ the human blastocyst-derived stem cells are obtained by ~~the method according to any of the claims 1-20~~:

i) using a fertilized oocyte of grade 1 or 2 to obtain a blastocyst of grade A or B;

ii) co-culturing the blastocyst with feeder cells to establish one or more colonies of inner cell mass cells;

iii) isolating the inner cell mass cells by mechanical dissection; and

iv) co-culturing the inner cell mass cells with feeder cells to obtain a blastocyst-derived stem cell line.

38. (Currently Amended) The ~~A~~ method of claim 36, wherein ~~according to claims 36-37 in which~~ the medium used in step i) is human blastocyst-derived stem cell medium.

39. (Currently Amended) The ~~A~~ method of ~~according to~~ claim 36, wherein ~~38 in which~~ the medium used in step ii) is blastocyst-derived stem cell body medium.

40. (Currently Amended) The ~~A~~ method of claim 36, wherein ~~according to claims 36-39 in which~~ the medium used in step iii) is blastocyst-derived stem cell body medium.

41. (Currently Amended) The ~~A~~ method of claim 36, wherein ~~according to claims 36-40 in which~~ nicotinamide is added after step vi).

42. (Currently Amended) An essentially pure preparation of differentiated stem cells, wherein said stem ~~the~~ cells display an ~~the~~ expression of pancreatic cell type markers wherein said marker is ~~, including~~ at least one or more of insulin, Glut-2, Pdx-1, glucokinase, glucagons, or ~~and~~ somatostatin.

43. (Currently Amended) The preparation of ~~according to~~ claim 42, which is capable of producing at least about 320 ng insulin/mg total protein ~~such as at least about 380 ng insulin/mg total protein or at least about 420 ng insulin/mg total protein~~.

44. (Currently Amended) The preparation of claim 42, wherein the ~~according to claims 42 or 43, in which~~ preparation comprises at least 25% ~~the proportion of~~ insulin producing cells ~~is at least 25%, such as e.g. at least 35%, or at least 45%, or at least 50%~~.

45. (Currently Amended) The preparation of claim 42, wherein said stem cells are organized ~~according to claims 42-44, characterized by its organization~~ into islet-like structures comprising an inner core of β-cells surrounded by an outer layer of neuron-type cells, wherein the ~~which~~ neuron-type cells express ~~display expression of~~ at least one of the ~~following~~ neuronal cell type markers selected from the group consisting of: ~~, including~~ neuron-specific β-III tubulin (TUJ1), NeuN, DoubleCortin, tyrosine hydroxylase, and Map 2.

46. (Currently Amended) The preparation of claim 42 ~~according to claims 42-45~~, obtained by ~~the method according to claims 36-41~~:

i) expanding human blastocyst-derived stem cells by growing the blastocyst-derived stem cells on an inactivated feeder cell layer in a suitable medium;

ii) generating blastocyst-derived stem cell bodies by dissociating colonies formed in step i) into smaller aggregates or individual cells, followed by transferring said aggregates or individual cells in to non-adherent containers wherein said aggregate or individual cells are incubated in a suitable medium; and

iii) plating the blastocyst-derived stem cell bodies in containers in a suitable medium;
iv) selecting nestin-positive neural precursors in ITFSn medium;
v) expanding pancreatic endocrine progenitor cells in N2-medium comprising B27 media complement and basic fibroblast growth factor; and
vi) changing the medium to a basic fibroblast growth factor-free N2 medium.

47. (Currently Amended) An essentially pure preparation of differentiated stem cells, wherein the stem cells express ~~display the expression of~~ at least one of the ~~following~~ neuronal cell type markers selected from the group consisting of: ~~,~~ ~~including~~ neuron-specific β-III tubulin (TUJ1), NeuN, DoubleCortin, tyrosine hydroxylase, or ~~and~~ Map 2.

48. (Currently Amended) The preparation of ~~according to~~ claim 47[[,]] obtained by ~~the method according to claims 36-41~~:
i) expanding human blastocyst-derived stem cells by growing the blastocyst-derived stem cells on an inactivated feeder cell layer in a suitable medium;
ii) generating blastocyst-derived stem cell bodies by dissociating colonies formed in step i) into smaller aggregates or individual cells, followed by transferring said aggregates or individual cells in to non-adherent containers wherein said aggregate or individual cells are incubated in a suitable medium; and
iii) plating the blastocyst-derived stem cell bodies in containers in a suitable medium;
iv) selecting nestin-positive neural precursors in ITFSn medium;
v) expanding pancreatic endocrine progenitor cells in N2-medium comprising B27 media complement and basic fibroblast growth factor; and
vi) changing the medium to a basic fibroblast growth factor-free N2 medium.

49. (Currently Amended) An essentially pure preparation of stem cells obtained ~~obtainable~~ by ~~the method according to claims 36-41~~:
i) expanding human blastocyst-derived stem cells by growing the blastocyst-derived stem cells on an inactivated feeder cell layer in a suitable medium;

ii) generating blastocyst-derived stem cell bodies by dissociating colonies formed in step i) into smaller aggregates or individual cells, followed by transferring said aggregates or individual cells in to non-adherent containers wherein said aggregate or individual cells are incubated in a suitable medium; and
iii) plating the blastocyst-derived stem cell bodies in containers in a suitable medium;
iv) selecting nestin-positive neural precursors in ITFSn medium;
v) expanding pancreatic endocrine progenitor cells in N2-medium comprising B27 media complement and basic fibroblast growth factor; and
vi) changing the medium to a basic fibroblast growth factor-free N2 medium.

50. (Currently Amended) An essentially pure ~~Use of a~~ preparation of differentiated stem cells of claim 42 ~~according to claims 42-46 for the manufacture of a medicament~~ for ~~the~~ preventing ~~prevention~~ or treating ~~treatment of~~ pathologies or diseases in the pancreas.

51. (Currently Amended) The preparation of ~~Use according to~~ claim 50, wherein ~~in which~~ the disease is diabetes.

52. (Currently Amended) The preparation of ~~Use according to~~ claim 50, wherein ~~or 51,~~ in which the disease is type 1 diabetes.

53. (Currently Amended) The preparation of claim 47 ~~Use of a preparation according to claims 47-48 for the manufacture of a medicament~~ for treating ~~the treatment of~~ pathologies or diseases in the nervous system.

54. (Currently Amended) The preparation of ~~Use according to~~ claim 53, wherein ~~in which~~ the disease is selected from the group consisting of multiple sclerosis ~~schlerosis~~, spinal chord injury, an encephalopathy ~~encephalopathies~~, Parkinson's disease, Huntingdon's disease, stroke, a traumatic brain injury ~~injuries~~, a hypoxia induced brain injury ~~injuries~~, an ischemia induced brain injury ~~injuries~~, a hypoglycemic brain injury ~~injuries~~, a degenerative disorder ~~disorders~~ of the nervous

system, a brain tumor, ~~tumors~~ and a neuropathy ~~neuropathies~~ in the peripheral nervous system.

55. (Currently Amended) A kit ~~Kit~~ for performing the method of claim 36 ~~according to claims 36-41,~~ comprising at least two of the following components in separate compartments: [[;]] mitomycin C, hBS medium, BS cell body medium, ITSFn-medium, N2-medium, B27-media supplement, nicotinamide, and bFGF.

56. (Currently Amended) The kit ~~Kit according to~~ of claim 55, further comprising an essentially pure human blastocyst-derived ~~derinved~~ stem cell line obtained by ~~the method according to any of the claims 1-20~~:

i) using a fertilized oocyte of grade 1 or 2 to obtain a blastocyst of grade A or B;

ii) co-culturing the blastocyst with feeder cells to establish one or more colonies of inner cell mass cells;

iii) isolating the inner cell mass cells by mechanical dissection; and

iv) co-culturing the inner cell mass cells with feeder cells to obtain a blastocyst-derived stem cell line.

57. (New) The method of claim 1 further comprising propagating the blastocyst-derived stem cell line.

58. (New) The method of claim 2 further comprising propagating the blastocyst-derived stem cell line.

59. (New) The method of claim 3 further comprising propagating the blastocyst-derived stem cell line.

60. (New) The method of claim 9, wherein the step of culturing uses feeder cells at a density less than about 55,000 cells per cm^2.

61. (New) The method of claim 9, wherein the step of culturing uses feeder cells at a density less than about 50,000 cells per cm^2.